

## Claims

What is claimed is:

1. A method for measuring pressure of a pressurized medium above a predetermined  
5 threshold pressure, the method comprising:  
providing a rigid substrate bearing a pressure sensitive resistor;  
exposing the pressure sensitive resistor to the pressurized medium; and  
detecting the electrical resistance of the pressure sensitive resistor.
- 10 2. The method for measuring pressure according to claim 1, wherein the measured  
pressure range is greater than 500 pounds per square inch.
3. The method for measuring pressure according to claim 1, wherein the  
predetermined threshold pressure is between 0 pounds per square inch and 50,000  
15 pounds per square inch.
4. The method for measuring pressure according to claim 1, wherein the substrate is  
ceramic and the resistor is a thick film resistor.
- 20 5. The method for measuring pressure according to claim 1, wherein a conductor is  
attached to each end of the resistor.

6. The method for measuring pressure according to claim 1, wherein the sensor does not have a diaphragm.
7. The method for measuring pressure according to claim 1, wherein the pressurized  
5 medium presses uniformly on all exposed surfaces of the resistor.
8. The method for measuring pressure according to claim 3, wherein the substrate has a plurality of vias extending therethrough, the vias connected to the conductors.
- 10 9. The method for measuring pressure according to claim 1, wherein a voltage is applied to the resistor, the pressure sensor being adapted to output an electrical signal that changes in response to a pressure change in the media.
10. The method for measuring pressure according to claim 1, wherein four resistors  
15 are located on the substrate and are connected to form a wheatstone bridge.
11. The method for measuring pressure according to claim 1, wherein the substrate has a first surface and a second surface, two resistors being mounted to the first surface and two resistors being mounted to the second surface, the resistors connected  
20 together to form a wheatstone bridge.

12. A pressure sensor for attachment to a pressure vessel comprising:

- a) a substrate communicated with the pressure vessel, the substrate having a first surface and a second surface, the first surface adapted to be exposed to a first pressure level contained within the pressure vessel, the second surface adapted to be exposed to a second pressure level;
- b) a first resistor mounted to the first surface, the first resistor responsive to the first pressure level; and
- c) a second resistor mounted to the second surface, the second resistor responsive to the second pressure level.

13. The pressure sensor according to claim 12, wherein the first resistor changes resistance in response to a change in the first pressure level.

14. The pressure sensor according to claim 12, wherein the second resistor has a substantially constant resistance in response to a substantially constant second pressure level.

15. The pressure sensor according to claim 12, wherein an electronic circuit is connected to the first and second resistors.

16. The pressure sensor according to claim 15, wherein the electronic circuit is adapted to receive an electrical signal as an input and provide a conditioned electrical signal as an output.

17. The pressure sensor according to claim 16, wherein the electrical signal is indicative of the first pressure level.

18. A pressure sensor for attachment to a pressure vessel comprising:

- 5 a) a housing communicated with the pressure vessel;
- b) a substrate mounted to the housing,
- c) the substrate having a first surface and a second surface, the first surface adapted to be exposed to a first pressure level contained within the pressure vessel;
- d) a first resistor mounted to the first surface, the first resistor responsive to the first  
10 pressure level; and
- d) a second resistor mounted to the first surface, the second resistor having a low response to the first pressure level, the second resistor and the first resistor electrically connected.

15 19. The pressure sensor according to claim 18, wherein a terminal is mounted to the housing and is electrically connected to the resistors.

20. The pressure sensor according to claim 18, wherein the first resistor changes resistance in response to a change in the first pressure level.

20 21. The pressure sensor according to claim 18, wherein an electronic circuit is mounted to the housing, the electronic circuit electrically connected with the first and second resistors.

22. The pressure sensor according to claim 21, wherein the electronic circuit is adapted to receive an electrical signal as an input and provide a conditioned electrical signal as an output.

5 23. The pressure sensor according to claim 22, wherein the electrical signal is indicative of the first pressure level.

24. A pressure sensor for sensing a pressure level of a pressurized medium, comprising:

- 10 a) a substrate having a first surface and a second surface, the first surface communicated with the medium; and
- b) at least one resistor mounted to the first surface, the resistor having a surface area, the resistor being exposed to the pressurized medium such that the pressurized medium isostatically compresses the resistor, the resistor being adapted to change
- 15 resistance in response to the pressure level.

25. The pressure sensor according to claim 24, wherein the sensed pressure range is above 500 pounds per square inch.

20 26. The pressure sensor according to claim 24, wherein the resistor is an applied film resistor.

27. A high pressure sensor for detecting the pressure of a pressurized medium above a predetermined threshold pressure, the sensor comprising:

- a) a rigid substrate having a medium contacting side; and
- b) an applied film resistor mounted on the medium contacting side, the resistor

5 exhibiting a change in resistance in response to pressure changes on the resistor above a predetermined threshold.

28. The pressure sensor according to claim 27, wherein the sensor does not have a diaphragm.

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29. The pressure sensor according to claim 27, wherein a conductor is attached to each end of the resistor.

30. The pressure sensor according to claim 27, wherein the substrate does not bend under pressure.

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31. The pressure sensor according to claim 27, wherein the substrate is mounted to a housing.

32. The pressure sensor according to claim 31, wherein the housing is secured to a pressure vessel, the pressurized medium contained within the pressure vessel.

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33. The pressure sensor according to claim 27, wherein the resistor is covered by a covercoat.

34. The pressure sensor according to claim 27, wherein the resistor is buried within the substrate.

35. A pressure sensor for use with a pressurized medium, comprising:

- a) at least one resistor having a length, a width and a height, the length width and height defining a resistor volume, the resistor having a resistance that varies with applied pressure, the resistor adapted to be in direct contact with the pressurized medium, the resistor adapted to be uniformly compressed by the pressurized medium such that the resistor volume changes with a change in pressure, the change in resistor volume generating a change in the resistance of the resistor; and
- b) a pair of terminals attached to opposing sides of the resistor, the terminals providing an electrical connection between the resistor and an external electrical circuit.

36. The pressure sensor according to claim 35, comprising four resistors connected in a wheatstone bridge, two of the resistors being exposed to the pressurized medium and two of the resistors being out of the pressurized medium.